

Growing WILD

Utah's Project WILD Newsletter



Fall 1992



*"We live in deeds, not years;
in thoughts, not breaths;
in feelings,
not in figures
on a dial."*

*Philip Bailey
1816-1902*

Action Packed!

Utah's long hot summer days are finally passing into the pleasant days of autumn. And as the sun's light spreads at a more gentle angle, people are spending more time outdoors. (The average American spends less than 5% of their time outdoors!) Take time to rediscover those places that a more temperate sun reveals.

While outside, consider the intricacies and importance of natural systems. Look for connections between systems, like the relationships between the plant community in the foothills and the water cycle. Where do you fit into the cycles of nature?

Now consider your commitment to a healthy natural world and the wild animals that are connected to you through shared systems.

Are you giving something back? Can you do more? Is your class interested in taking action for wildlife?

In this issue of *Growing WILD*, we have emphasized the need for student involvement. Action projects are appropriate and important. Remember that each positive action that benefits the natural world in turn benefits wildlife and you.

"The kids seem to want to do more than just think about a problem, they want to do something about it."

*--Jamie McAllister,
Teacher, Heber City*

Action Makes Education Relevant

How can we make today's curriculum relevant to students in a rapidly changing world? One important method is to involve students in the decision making process in their schools and communities. Until recently most educators believed that if teachers provided information to students, the students would then be able to take that information and make informed decisions that would lead to responsible actions. However, recent educational research indicates that students will not exhibit responsible environmental behaviors (turning off an unused light, conserving water, recycling) when exposed to a curriculum that is based solely on content information (Hungerford, 1991). **If we want our children to be environmentally responsible citizens, we must teach them specific action skills.**

Today educators can choose from several action curricula. Below you will find a basic outline that captures the important features common to most action programs. Listed on the next page is a resource list of action curricula taken from a variety of sources. Investigate and decide which program is most appropriate to your teaching situation. If you are interested in a Project WILD action workshop, please contact our office (538-4720).

Step One - Building a Foundation

Action skills are only a part of conservation education. Before a student can accept the responsibility of taking an action, there needs to be a sequential development of knowledge and understanding about the subject of a possible action. Project WILD's conceptual framework provides a sequence that builds an understanding of wildlife issues. Teachers should be sure that students are well prepared with solid experiences and information before embarking on an action project.

Step Two - Issue Investigation

Issue investigation provides a forum for students to develop important citizenship skills in a cooperative learning environment. Have your class brainstorm wildlife issues and problems in which they are interested. Then use the students' natural interest to teach them issue investigation skills and research techniques. Develop students into "authorities" on local wildlife problems and issues. Issue investigation creates an opportunity for students to affect issue outcomes through the impact of their research data.

Step Three - Actions

After the investigation data has been interpreted, the students develop an action strategy. Several factors need to be considered before developing an action strategy. Is there sufficient evidence to warrant action on this issue? Are there alternative actions available? What are the economic, social, or legal consequences to the action? Do you have all the resources available to take the action? In addition students need to choose from several different modes of actions: persuasion, consumer action, political action, legal action and eco-management. There are also different levels of actions: projects that result in a physical product such as an outdoor classroom, projects that are focused on establishing a process such as recycling plans and projects that address public policy change such as local, state or national laws.

Remember there are several action project models. None is better than the others; however, one might be more appropriate for your teaching situation. Investigate the curricula and choose according to your needs.

**Act Now! Return the reply form on page 11 by October 31
to keep your name on our Project WILD mailing list!**

Here Are Some Proven Action Programs!

Investigating and Evaluating Environmental Issues and Actions, Harold Hungerford, Ralph Lithlerland, Ben Peyton, John Ramsey and Trudi Volk. Research supported and classroom proven, Hungerford's problem-solving curriculum focuses on real issues and actions. Although developed for grades 6-12, the program is adaptable to lower grade levels. Check out the curriculum through the Project WILD office or purchase the curriculum from Stipes Publishing, 10 Chester St., Champaign, IL 61820 (217) 356-8391. A copy of the teacher's edition is \$18.80, and the student edition is \$9.80.

Responsible Action: Engaging Students in Action Research Projects, Bill Hammond, Lee County School District, 2055 Central Avenue, Ft. Myers, FL 33901 (813) 337-8120. Bill has created a curriculum that challenges students to be involved in community decisions. Write Bill to get a free copy of his Monday Group Skills Packet.

Science - Technology - Society: Investigating and Evaluating STS Issues and Solutions, Harold Hungerford, Trudi Volk and John Ramsey. Designed to help students in grades 5-12 to become more effective members in a society dominated by science and technology through the development of issue investigation and action skills. Available for check-out through the Project WILD office or purchase the teacher edition (\$14.80) and student workbook (\$9.80) from Stipes Publishing at the above address.

Count Down for Earth, Mesa Public Schools. Students investigate environmental issues that are a part of daily life. Action opportunities are offered. Developed for 3rd and 4th grade. You can check out the curriculum from Project WILD or purchase it for \$8.50 from Science Resource Center, Attn: Billie Bell, Mesa Public Schools, 143 South Alma School Road, Mesa, AZ 85210-1103.

Bill Hammond has been involved in student actions in Florida schools for many years. Over his career he has developed some important teacher guidelines for action projects. Bill believes that the challenge to educators today is to make education "hands-on and minds-on." If you have an interest in Bill's work, please read his article on "The Monday Group" in the Project WILD activity guide. Here are a few of Bill's rules for developing a successful action project.

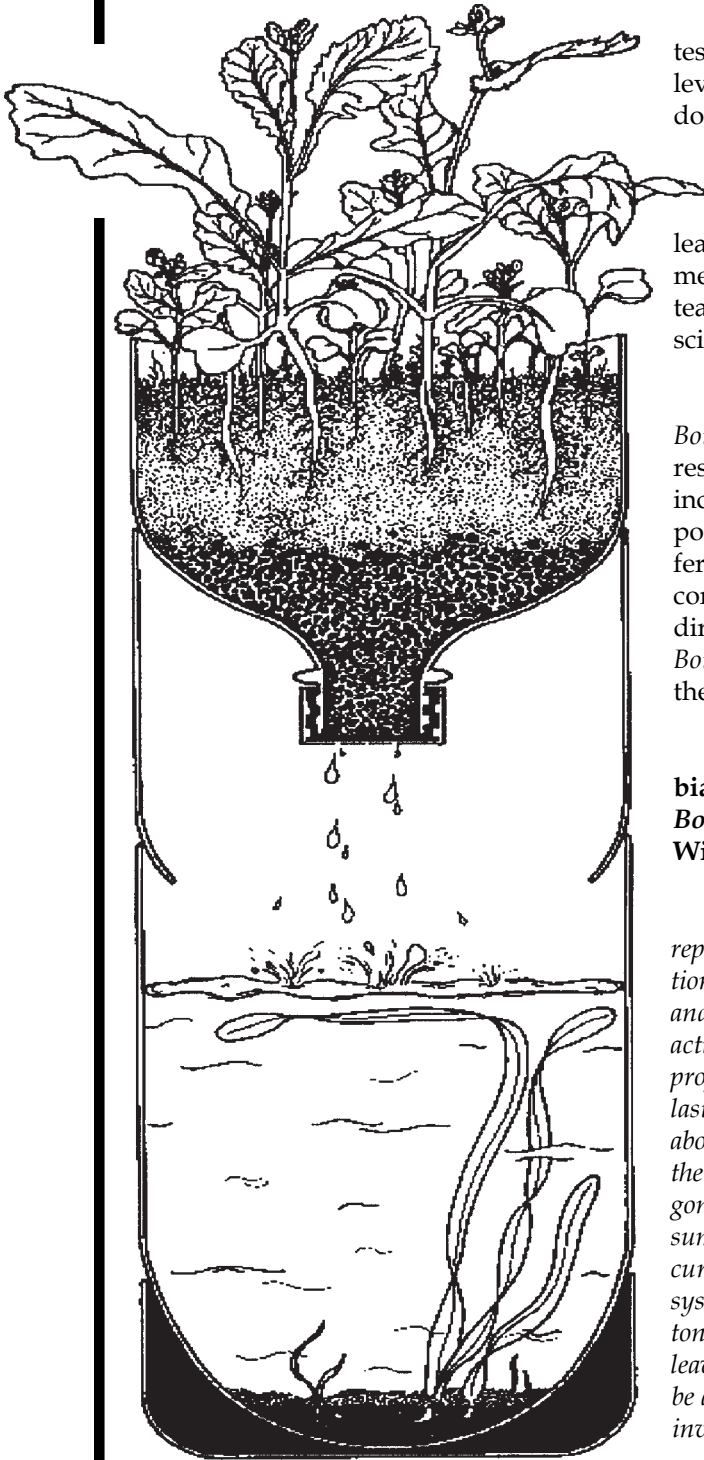
Things to do

- Students should decide on the action project to be selected.
- Provide students with a range of views or values on issues.
- Be "for" something.
Know your goal.
- Take on a project that can be incrementally completed.
- Plan for the long haul.
Be persistent!
- Failure can be invaluable if you turn it into a learning experience for trying again.

Pit falls to avoid

- Never use students as advocates for a cause of teacher or school.
- Never indoctrinate students to a particular viewpoint.
- Avoid being "against" something without proposing a solution.
- Avoid taking on a project that cannot be completed in a school year.
- Don't think that a problem that took years to form can be solved in a few days or year.
- Avoid letting failure be an end point rather than a new beginning.

Using Throw-Away Materials, Explore Natural Systems and Action Projects With "Bottle Biology"



Available free of charge, *Bottle Biology* is a classroom-tested approach to hands-on biology. It allows students on all levels to become engaged in the actual process and activity of doing science -- asking questions, creating experiments, testing hypotheses and generating "answers." Teachers and students working with *Bottle Biology* use throw-away containers to explore many areas of the life sciences, leading to a better understanding of ecosystems, local environments and biotic interactions. *Bottle Biology* activities give teachers, students and scientists a low-cost and accessible scientific world to explore.

Initially funded by the National Science Foundation, *Bottle Biology* presents its concepts and theories in practical resource formats for classroom use. A variety of activities include explorations in ecosystem interactions, biodegradation, population dynamics, experimental design and microbial fermentation. Activities range from the simple to the very complex. Many of the ideas for *Bottle Biology* activities come directly from teachers and students, and the coordinators for *Bottle Biology* are eager to hear from teachers who integrate these activities into classroom curricula.

For your FREE set of *Bottle Biology* activities and biannual newsletter containing even more activities, write *Bottle Biology* Project, Attn: Lori Graham, University of Wisconsin, 1630 Linden Dr., Madison, WI 53706.

With permission of the Bottle Biology Project, we are reprinting their activity which explores the process of decomposition. Because this issue of *Growing WILD* focuses on action issues and projects, "Compost Columns" is an example of a classroom activity which could easily be expanded into a school-wide action project. Silver Hills Elementary School in Salt Lake City, one of last year's Naturescaping Grant recipients, is already thinking about constructing a compost pile on its school grounds for use in their various planting projects. (Since some schools in Utah have gone to year round scheduling, perhaps designing and planting summer vegetable gardens might be correlated to classroom curricula to offer students first-hand experiences with natural systems!) When data shows us that 17 percent (or about 320,000 tons a year!) of all household waste is yard waste -- grass clippings, leaves, brush, weeds and garden debris, we see that composting may be an easy method for explorations into biological processes and investigations into current issues at the same time.



Compost Columns

*Where do things go when they die?
Explore the process of decomposition.*

Composting is based on the biological process of decomposition. What turns plants and animals into compost? Microscopic bacteria and fungi, which feed on dead tissue, are the chief agents.

What affects the composting process? The amount of moisture and air, temperature, light, sources of bacteria and fungi, and the nature of the decomposing material are all critical. The presence or absence of air (oxygen) is one of the most important factors in composting. The practice of composting allows air and moisture to speed the natural process of biodegradation. Making a compost column lets you see and experiment with this process, and witness nature's world of recycling.



Materials Needed:

- . Three 2-liter plastic beverage bottles
- . Hot tap water, knife or razor blade, scissors, marking pen, sharp -needles for poking holes, clear tape, netting or mesh fabric, rubber bands.
- . Organic materials for composting, such as kitchen scraps, leaves, newspapers, animal manure, and grass clippings.

Procedure:

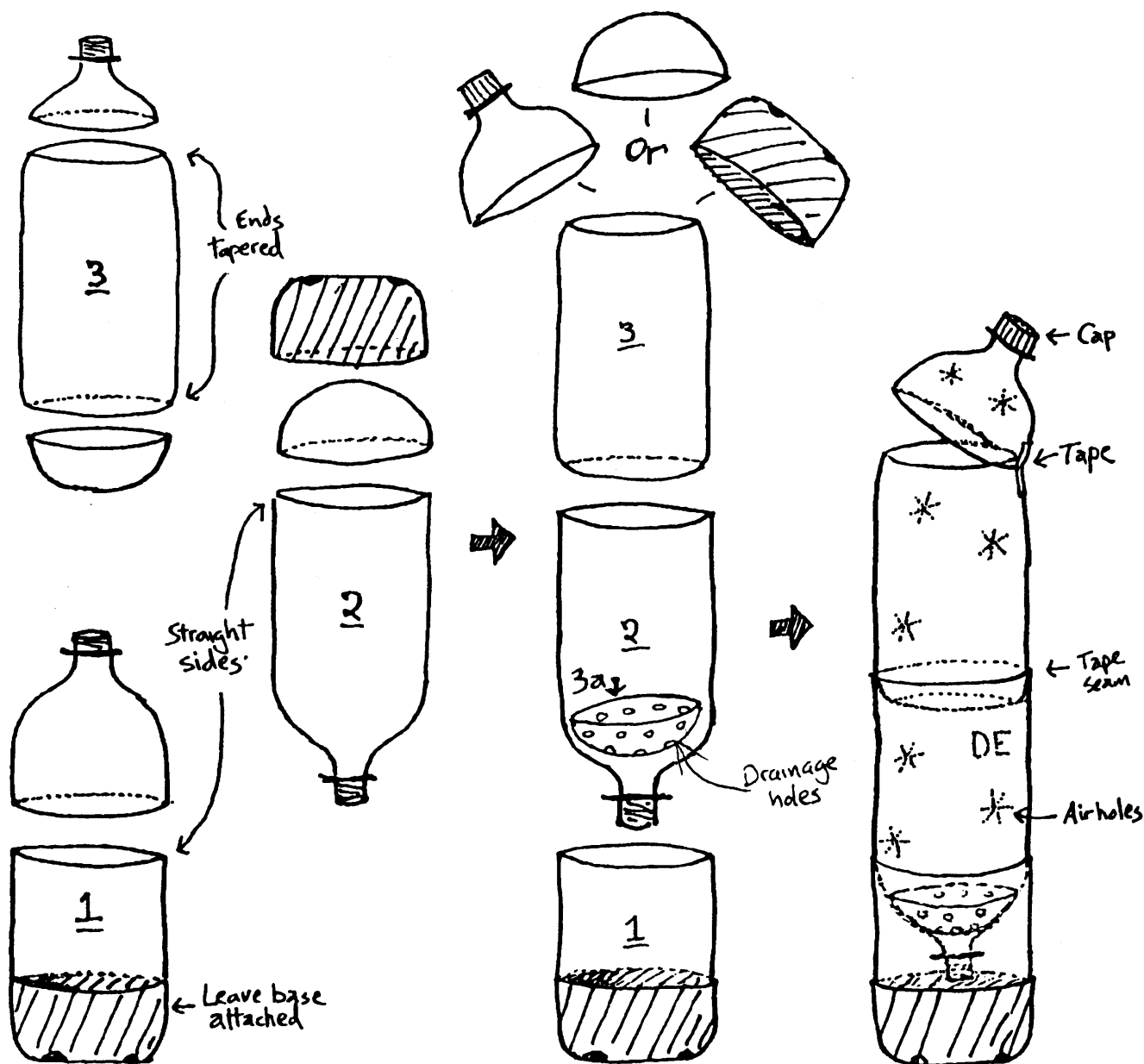
Remove the bases from two bottles, and the labels from all three, by pouring about two cups of hot tap water into the bottles. (Columns can also be made from bottles that don't have removable bases.) Replace the cap, tilt the bottle so the water softens the heat-sensitive glue, peel off the label and twist off the base. Pour out the water, draw cutting lines around the bottle, make incisions with the knife and cut with scissors and assemble as illustrated.

Most columns will require air holes for ventilation, and these can be poked into the plastic with a sharp cold needle or with a needle or paper clip heated in a candle flame. Alternatively, larger holes can be cut into the sides with the knife and covered with fine mesh fabric held in place with tape. A piece of mesh fabric over the lower end allows for drainage. Refer to the illustrations. Add ingredients for composting through the top of the column.

Explorations:

The possibilities for compost column explorations and discoveries are endless. There is no limit to what can be put inside, or the conditions under which the column can be kept. In addition to simply observing changes, you can design experiments which explore the effects of variables on you column.

Compost Column Construction



Two Possible Explorations:

•**Leaf Digester.** Make two columns, and use a balance or postal scale to weigh out two equal quantities of leaves. Loosely pack one column with leaves only. Mix about a half cup of garden soil to the other batch of leaves and loosely pack the second column. Pour equal amounts of pond or rainwater into each column, and wait several hours for it to percolate through. If none comes out the bottom, add more in equal amounts until about a half cup drips into the reservoir. Schedule a rainstorm to occur in the column every few days, pouring the drippings back through the column. Which column decomposes faster and why?

•**Compost Tea.** Compost columns can be used to generate a liquid fertilizer called "compost tea". Try making several columns using different ingredients, whose drippings will differ in color and chemistry. Use this liquid to water and fertilize identical sets of seedlings to see how different brands of "tea" affect plant growth. Some drippings, such as those from a column filled with leaves from a black walnut tree, may even inhibit growth.

Exploring Yard Waste With Project WILD & PLT

Several Project WILD and Project Learning Tree activities can help you present the issue of yard waste to your students. These activities demonstrate yard and garden practices and the problems associated with yard waste.

Project WILD Activities: Microtrek Scavenger Hunt (elementary guide); Eco-Enrichers; Changing Attitudes (investigate attitudes about yard practices, yard waste, composting, gardening, planting for wildlife, landscaping with native plants, pesticide use, etc.) Look into local laws and ordinances about yard practices and yard waste (leaf bagging, grass clipping disposal, composting, burning).

Project Learning Tree Activities (Elementary Guide): School Yard Safari (students can look for organisms on school grounds and in their own yards that live in decaying wood, fallen leaves, grass clippings, brush piles, soil, etc.); What's in Soil?; Sow Bugs 'n' Soil; Fertilizers.

Project Learning Tree Activities (Secondary Guide): Hard Choices (modify for lawn and garden pesticides); How Do You Bury a Pile of Dirt? (focus on common yard wastes: branches, leaves, grass clippings, etc. or investigate compostable kitchen waste); A Simpler Life (take a look at home lifestyles and lawn and garden practices).

--from EE NEWS, environmental education newsletter from Wisconsin Natural Resources, Department of Public Instruction and Association for Environmental Education, Inc.

Counting Down to Action

Hands-on investigations are often used as springboards to action projects. Mesa Public Schools, Arizona, has developed an action curriculum for elementary levels (described on page 3 of this newsletter). The ideas we have reprinted here are brief summaries of more extensive activities found in their curriculum guide. In the April issue of Science and Children, these ideas were described as "surefire ways to interest children in preserving their planet."

1. Take a deep breath! To help students identify pollutants in the air, let them construct air traps. Give each student an 18 x 5-cm strip of poster board and a pair of scissors. Let students cut three holes (each about 2.5 cm in diameter) in the strip. Punch a hole at the top of the strip and tie a piece of string through it for hanging. Give each student a piece of clear plastic tape long enough to cover the length of the poster board strip. Let students hang their new air traps on the school grounds. Later in the day, have them collect the traps and take a closer look with their hand lenses. They should then make a written, illustrated record of their observations.

2. Color Me Green! Encourage students to recognize their dependence on plants. Discuss the fact that humans breathe in oxygen and breathe out carbon dioxide. Use a sprig of anacharis (an aquatic plant available at aquarium shops) to help students visualize how plants produce oxygen. Place the anacharis in a graduated cylinder and fill with fresh water. Take the students outside to a sunny spot on the playground. Place the anacharis/cylinder on the ground. Observe. (Small bubbles of oxygen will rise from the anacharis leaves.) Ask the students to explain what is happening. (The plant is cycling carbon dioxide from the water through its system and producing oxygen).

3. Who, me?! Dumping harmful substances down the drain or onto the ground can contaminate the soil and water supply. The following lesson helps students experience the effects of groundwater pollution. Each pair of students will need: 200 mL water, a container to catch the water, one paper cup, a pencil, 45 mL soil, 15 mL powdered milk, and a stirring stick. Have students turn the cup upside-down and poke five holes in the bottom with a pencil. Turn the cup right-side-up and place the soil inside. What will happen when they pour water into the cup? Pour and observe, catching the water in a container. (The water comes out clear!) Now mix the powdered milk into the soil. Can students predict what will happen this time? Pour and observe. (The water is milky!)

Our thanks to Joanne Wolf, a science resource teacher in Mesa Public Schools, for permission to reprint these activities.

Taking Education from the Classroom to Farmington Bay With Field Trips and Action Projects

Farmington Bay, a waterfowl management area on the eastern shore of the Great Salt Lake, is critical wetland habitat for waterfowl and shorebird populations. Farmington Bay includes 5000 acres of natural wetlands and 12,000 acres of developed marshes. It is currently in a restoration stage after the recent flooding of the Great Salt Lake. To control and hasten the recovery process, the Utah Division of Wildlife Resources is rebuilding dikes and structures to hold and vary water levels in freshwater ponds, flushing salty soils with fresh water to create growing sites for plants important to wildlife and removing "invader" plants to allow native plants to flourish.

Public visitation of Farmington Bay is a critical goal in its management plan.

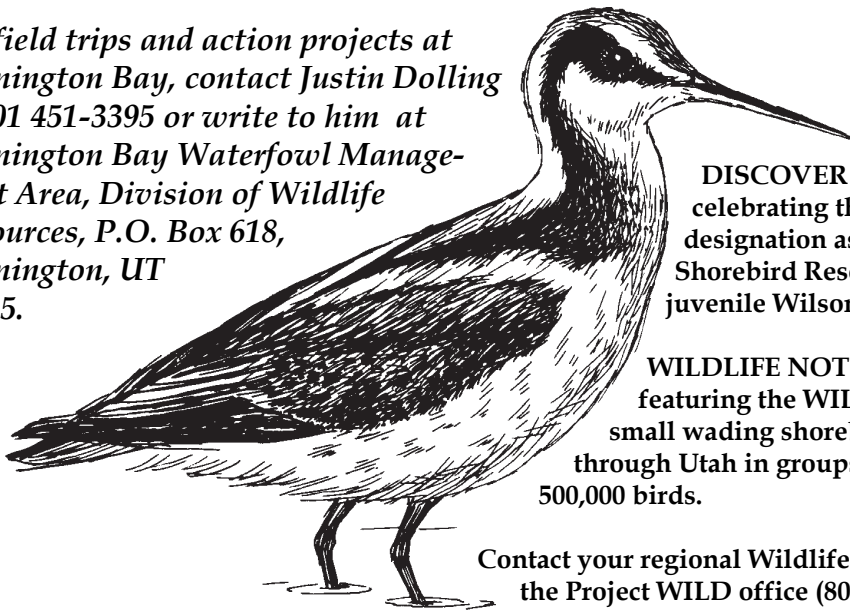
For Field Trips (to explore such topics as marsh ecology, invertebrate life and bird abundance): Justin Dolling, Superintendent for Farmington Bay Waterfowl Management Area, would like to design and manage field trips so that they meet teachers' educational needs. His goal is to arrange visits to Farmington Bay based on teachers' curriculum objectives. In order to maximize these field experiences, Justin asks that you call two to three weeks in advance to schedule a field trip.

There is adequate parking space for buses, but as yet there are no bathroom facilities. Interpretive signing is already in place. Brochures will be available soon.

For Action Projects:

Justin has several ideas for action projects at Farmington Bay, including a reseeding project and some landscaping projects near the entrance to the area. Justin's goal is to develop projects which maximize learning experiences in a field setting. Teachers interested in these or other action projects at Farmington Bay should contact Justin for more details and information about when these projects will be available.

For field trips and action projects at Farmington Bay, contact Justin Dolling at 801 451-3395 or write to him at Farmington Bay Waterfowl Management Area, Division of Wildlife Resources, P.O. Box 618, Farmington, UT 84025.



*female Wilson's phalarope
in breeding plumage*

NEW!

DISCOVER UTAH WILDLIFE POSTER celebrating the Great Salt Lake's recent designation as a Western Hemisphere Shorebird Reserve. Features photo of juvenile Wilson's phalarope.

WILDLIFE NOTEBOOK SERIES NO. 6 featuring the **WILSON'S PHALAROPE**, a small wading shorebird which migrates through Utah in groups totaling more than 500,000 birds.

Contact your regional Wildlife Resources office or contact the Project WILD office (801 538-4719) for copies!

Looking for a Direct Connection to the Natural World?

Apply Now for a Project WILD School Yard Naturescaping Grant

Again with the help of the Ogden Nature Center, we're ready to offer Naturescaping Grants for the new school year!

We applaud the recipients of last year's grants for all their dedication and hard work. Developing natural habitat areas on school grounds proved to be a challenging and rewarding project for WILD teachers, students, staff and communities. Utah teachers found creative and educational approaches to developing these areas, and we believe students and wildlife will share the long-term benefits.

If you would like to apply for a grant of up to \$300 to help develop a natural habitat area in your school yard (and remember that a natural area may be as simple as a winter bird feeding area or a spring butterfly garden), here's what you must do:

- Request an application packet from Project WILD, 1594 West North Temple, Ste. 2001 Salt Lake City, UT 84116.
- Complete the application form and return it to the Project WILD office by October 31, 1992.

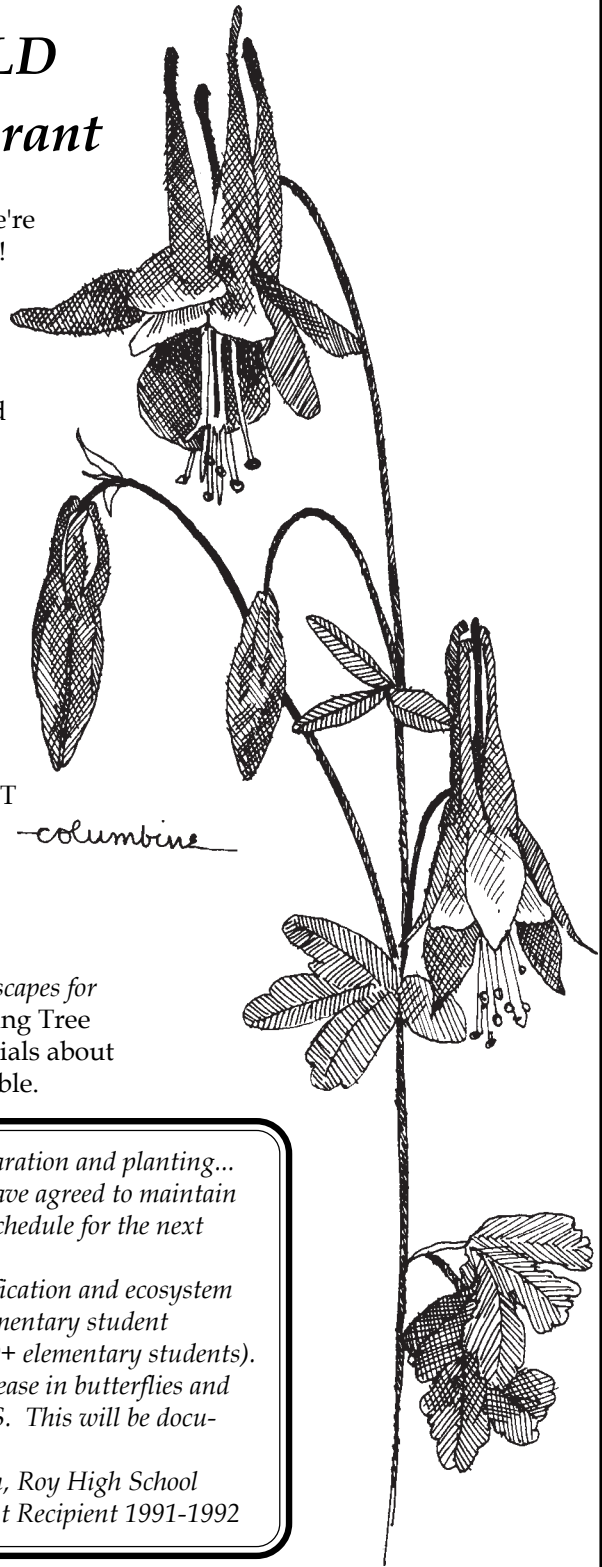
With your application, we'll send you *Creating Landscapes for Wildlife* and a correlation of Project WILD and Project Learning Tree activities for outdoor classrooms. We'll also mail new materials about outdoor classrooms as they're developed and become available.

"We had sixty students participating in the preparation and planting... The Key Club, Science Club, and Student Body Officers have agreed to maintain the plot over the summer and to organize a maintenance schedule for the next school year.

The areas have already been used for plant identification and ecosystem studies by biology classes (a total of 180 students) and elementary student scavenger hunts led by high school students (a total of 500+ elementary students).

Most excitingly, we have noticed an obvious increase in butterflies and we suspect this is true of other insects as well as SPIDERS. This will be documented in next year's ecosystem studies. Thank you!"

*--from Kate Grandison, Roy High School
Naturescaping Grant Recipient 1991-1992*



More Resources To Support Action Ideas

Kids With Courage, Barbara A. Lewis. Salt Lake City teacher documents environmental and social actions involving kids. Teacher's guide included. Available for check out from Project WILD or available at local bookstores.

Environmental Education News, Spring 1991, Vol. 7, No. 3, Wisconsin Department of Natural Resources. Heaps of information on composting. Available from Project WILD or write for a copy from Department of Natural Resources, Box 7921, Madison, WI 53707-7921.

NatureScope correlations to Project WILD. Strong support activities to reinforce or extend instructional concepts. Call the Project WILD office for this newly developed correlation to *NatureScope*.

The Stream Scene, Oregon Department of Fish and Wildlife. Perhaps the best stream and aquatic study curriculum available. Use our copy or write Oregon Department of Fish and Wildlife, P.O. Box 59, Portland, OR 97207.

Recycle for the Birds, Canadian Wildlife Federation. How to make backyard feeders from throw-away containers and natural materials. Currently being reprinted. Contact the Project WILD office to reserve a copy or write Canadian Wildlife Federation, Information Services, 1673 Carling Avenue, Ottawa, Ontario K2A 3Z1.

Fact Sheet, Utah State University Extension Office. Have students write for this one page information sheet on composting to USU Extension Office, 2001 South State St., Room S1200, Salt Lake City, UT 84190-3350 or call 801 468-3172.

Salt Lake Valley Resource Directory, Environmental Resources, Inc. Directory of energy efficient and environmentally responsible services and products. Available free of charge from Project WILD.

Marine Debris Education Materials, Marine Debris Information Office. The National Oceanic and Atmospheric Administration can send you a free teacher and student packet on marine debris teaching activities. Helpful for the Project WILD activity Plastic Jellyfish. Call 415 391-6204 or write Marine Debris Information Office, 312 Sutter St., Suite 606, San Francisco, CA 94108.

Snake River Salmon - Can We Save Them?, Idaho Fish and Game Department. A short video that summarizes the issues that surround the Idaho Sockeye Salmon. Good resource for the Project WILD activity Hooks and Ladders. Check out from the Project WILD office.

Endangered Species Coloring Book, Environmental Protection Agency. Free coloring book that could be used to enhance elementary level endangered species studies. Write United States E.P.A., Attn: Mary Ann Welch, 999 18th St. (80EA), Denver, Co 80202-2405.

The Solid Waste Mess: What Should We Do with the Garbage?, Environmental Issues Forum. Strong source of information about solid waste issues. Available for check-out from the Project WILD office.

Linking Population and the Environment, Population Reference Bureau, 1875 Connecticut Ave. N.W. Suite 520, Washington, D.C. 20009. Explore the tough issues surrounding human population growth. Teacher and student resource book is available for check-out at the Project WILD office.

Project Learning Tree, Division of State Lands and Forestry. Schedule a workshop to explore the issues and actions affecting the plant world. Call Joan Dolph, Project Learning Tree Coordinator, at 801 538-5505.

ACT NOW!

It's time to update our mailing list! If you wish to continue receiving *Growing WILD*, please return this reply form by October 31 in the envelope provided.

Please check the appropriate box:

☐

All information on the mailing label found on the back of this reply form is correct as written.

☐

I have updated the information on the mailing label in the space below:

Name _____

Address _____

Please tear off this page and return it to us promptly. Make sure the original mailing label is included. Vicki Unander (who manages our mailing lists and has coordinated the mailing of *Growing WILD* since the first issue -- THANK YOU, VICKI!) tells us this will be of immense help when she sits down in front of the computer to make corrections! Thank you for your help in keeping our WILD network up-to-date and active!

Project WILD wants to meet your needs. Let us know how *Growing WILD* can best serve you. In the "comments" section below, please feel free to add topics or ideas that you would like to see explored in future issues. Let us hear from you!!

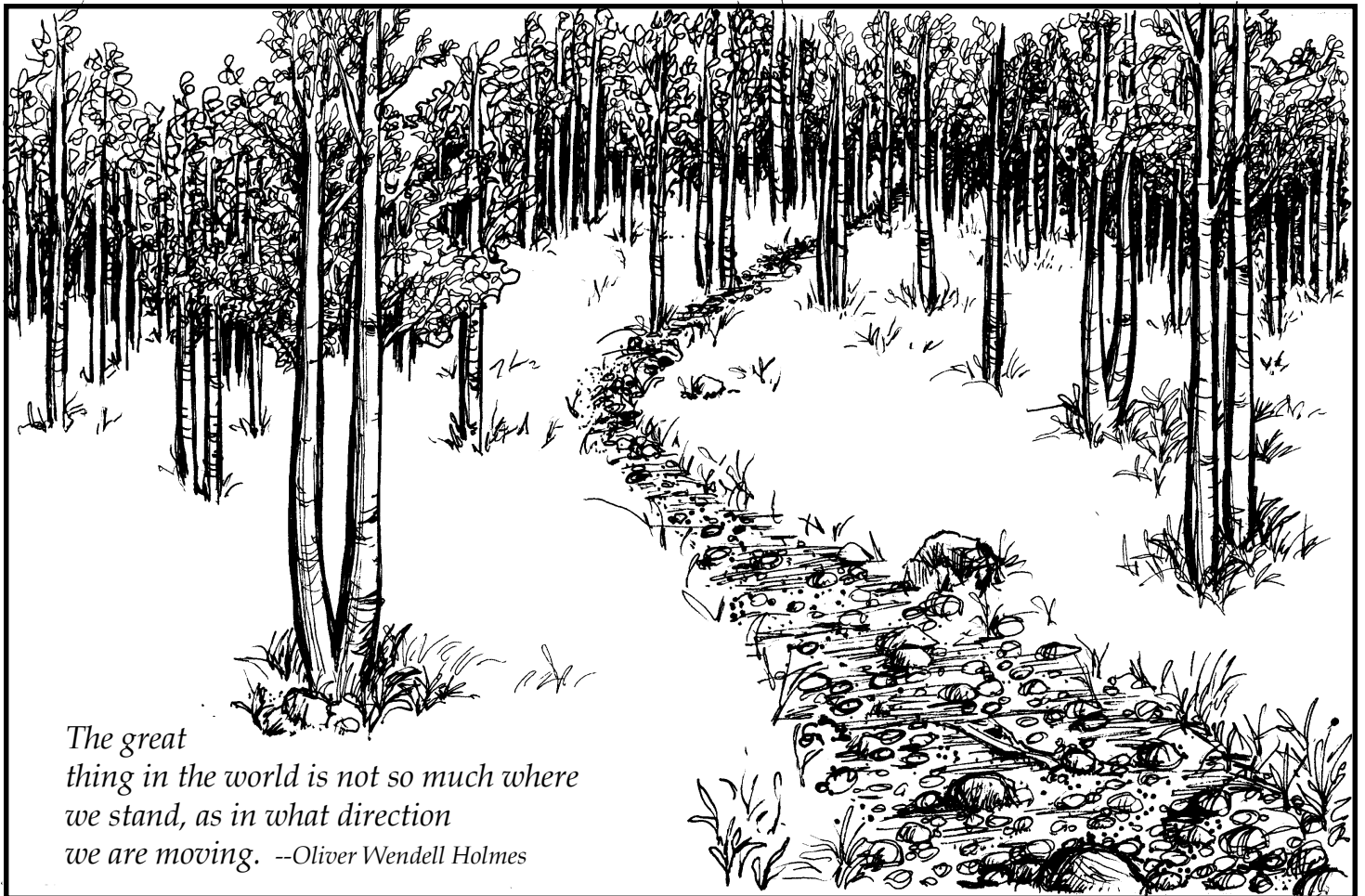
COMMENTS:



The tiger salamander is Utah's ONLY salamander!

tiger salamander

Growing WILD, Utah's Project WILD Newsletter, is written and edited by Bob Ellis and Brenda Schussman, Coordinators, Project WILD. Front and back page illustrations are by Jill Rensel. Project WILD is sponsored by the Utah Division of Wildlife Resources, 1594 W. North Temple, Ste. 2110, Salt Lake City, UT 84116 (801 538-4719).



*The great
thing in the world is not so much where
we stand, as in what direction
we are moving. --Oliver Wendell Holmes*